Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for detecting a fault of an oil temperature sensor for a hydraulic controller of an automatic transmission by using a determining means for detecting a fault of the oil temperature sensor based on temperature changes of the oil according to a driving mode, the method comprising the steps of:

a) detecting ~~a detecting~~ a vehicle voltage inputted to the oil temperature sensor and comparing the detected vehicle voltage with a critical vehicle voltage;

b) detecting an input voltage of the oil temperature sensor and comparing the detected input voltage of the oil temperature sensor with a lowest critical temperature, step b) comprising the sub-steps of:

b1) repeating an initial state when the vehicle voltage inputted to the oil temperature sensor is less than the critical vehicle voltage;

b2) determining that the oil temperature sensor is normal when the detected vehicle voltage is greater than the critical vehicle voltage; and

b3) comparing an input voltage inputted to the oil temperature sensor with a lowest critical voltage for determining whether there is a fault of the oil temperature sensor;

c) comparing the input voltage of the oil temperature sensor with a highest critical voltage; step c) comprising the sub-steps of:

c1) determining that there is a fault in the oil temperature sensor due to a ground short when the input voltage of the oil temperature sensor is less than the lowest critical voltage and terminating all procedures; and

c2) comparing the input voltage of the oil temperature sensor with a highest critical voltage for detecting the fault of the oil temperature sensor when the input voltage of the oil temperature sensor is greater than the lowest critical voltage;

d) comparing temperature of coolant of an engine, revolutions per minute (RPM) of the engine, and RPM of an output shaft of the automatic transmission with respective corresponding critical values; step d) comprising the sub-steps of:

d1) determining that the oil temperature sensor is normal when the input voltage of the oil temperature sensor is less than the highest critical voltage for detecting the fault of the oil temperature sensor, and terminating all procedures; ~~and~~

d2) comparing temperature of coolant of an engine, RPM of the engine, and RPM of an output shaft of the automatic transmission with respective corresponding critical values for detecting the fault when the input voltage of the oil temperature sensor is greater than the highest critical voltage for detecting the fault of the oil temperature sensor; and

d3) comparing the RPM of the engine with a critical engine RPM for detecting a fault of a RPM speed of the engine, and the RPM of an output shaft of the automatic transmission with a critical RPM of the RPM of the output shaft of the automatic transmission;

e) comparing a timer with a critical time for detecting a fault; step e) comprising the sub-steps of:

e1) stopping and initiating the timer when all detected values do not exceed the critical values, and repeating b);

e2) increasing the timer when all detected values exceed the critical values; and

e3) comparing the timer with the lowest critical voltage for detecting the fault of the oil temperature sensor; and

f) determining that there is a fault in the oil temperature sensor due to a short of the oil temperature sensor or a shut-off of electric power, step f) comprising the sub-steps of:

f1) repeating step b) when the timer is less than the critical time for detecting the fault of the oil temperature sensor;

f2) determining that there is a fault due to the short in the oil temperature sensor or a shut-off of the electric power when the timer is greater than the critical time for detecting the fault of the oil temperature sensor; and

f3) terminating all procedures.

2. (Withdrawn – Currently Amended) A method for detecting a fault of an oil temperature sensor for a hydraulic controller of an automatic transmission by using a determining means for detecting the fault of the oil temperature sensor based on instant temperature change per unit time of the automatic transmission, the method comprising the steps of:

a) displaying enabling/disabling modes of a jumper fault detecting function among fault detecting functions for the oil temperature sensor;

b) confirming whether the engine is started or not; the step b) comprising the sub-steps of:

b1) terminating all procedures when the disabling mode of the jumper fault detecting function is selected; and

b2) confirming whether the engine has been started or not when the enabling mode of the jumper fault detecting function is selected;

c) comparing the vehicle voltage with the critical vehicle voltage; step c) comprising the sub-steps of:

c1) repeating the step of confirming whether the engine has been started or not when the engine has not been started; and

c2) comparing the vehicle voltage with the critical vehicle voltage when the engine has been started;

d) receiving present oil temperature as an initial oil temperature for detecting the fault of the oil temperature sensor; step d) comprising the sub-steps of:

d1) repeating the step of comparing the vehicle voltage with the critical vehicle voltage when the vehicle voltage is less than the critical vehicle voltage; and

d2) receiving the present oil temperature as the initial oil temperature for detecting the fault in order to compare oil temperature changes per unit time when the vehicle voltage is greater than the critical vehicle voltage;

e) comparing a jump monitoring timer with a jumper fault determining time;

f) comparing a value of subtracting initial oil temperature for detecting a jumper fault from a maximal measured oil temperature for determining the jumper fault with a critical oil

temperature rate of change for determining the jumper fault; step f) comprising the sub-steps of:

f1) reading the maximal measured oil temperature of the jumper fault for determining the fault of the oil temperature sensor when the jump monitoring timer is less than the jumper fault determining time;

f2) receiving the oil temperature of the automatic transmission;

f3) repeating the step of comparing jump monitoring timer with the jumper fault determining time; and

f4) comparing the value of subtracting the initial oil temperature from the maximal measured oil temperature with the critical oil temperature rate of change for determining the jumper fault when the jump monitoring timer is greater than the jumper fault determining time;

g) increasing a jumper fault confirming timer; step g) comprising the sub-steps of:

g1) repeating the step of comparing the vehicle voltage with the critical vehicle voltage when the difference between the maximal measured oil temperature and the initial oil temperature is less than the critical oil temperature rate of change; and

g2) increasing the jumper fault confirming timer when the difference between the maximal measured oil temperature and the initial oil temperature is greater than the critical oil temperature rate of change;

h) comparing the difference between the maximal measured oil temperature for determining the jumper fault and the initial oil temperature for detecting the jumper fault with the critical oil temperature rate of change for determining the jumper fault; and

i) comparing the jumper fault confirming timer with a jumper fault confirming time; step i) comprising the sub-steps of:

i1) comparing the vehicle voltage with the critical vehicle voltage when the difference between the maximal measured oil temperature and the initial oil temperature is less than the critical oil temperature rate of change for determining the jumper fault;

i2) comparing the jumper fault confirming timer with the jumper fault confirming time when the difference between the maximal measured oil temperature and the initial oil

temperature is greater than the critical oil temperature rate of change for determining the jumper fault; ~~and~~

i3) repeating the step of increasing the jumper fault confirming timer when the jumper fault confirming timer is less than a fault confirming time for determining fault of the oil temperature sensor by detecting the temperature rate of change; and

i4) determining that there is fault of the oil temperature sensor when the jumper fault confirming timer is greater than a fault confirming time for determining fault of the oil temperature.

3. (Currently Amended) A method for detecting a fault of an oil temperature sensor for a hydraulic controller of an automatic transmission by using a determining means for detecting the fault of the oil temperature sensor in a stuck state of a detected signal of the oil temperature sensor in a driving mode where transmission oil temperature increases, the method comprising the steps of:

a) measuring the transmission oil temperature with the oil temperature sensor;

~~a)~~ b) confirming whether enabling/disabling modes of a stuck fault detecting function of the oil temperature sensor are displayed;

c) detecting a vehicle voltage inputted to the oil temperature sensor and ~~b)~~ comparing [[a]] the vehicle voltage with a critical vehicle voltage; the step comprising the sub-steps of:

~~b1)~~ c1) terminating all procedures when the disabling mode of the stuck fault detecting function is selected; and

~~b2)~~ c2) comparing the vehicle voltage with the critical vehicle voltage when the enabling mode of the stuck fault detecting function is selected;

~~c)~~ d) comparing the transmission oil temperature with a maximal transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state; step ~~c)~~ d) comprising the sub-steps of:

~~c1)~~ d1) terminating all procedures when the vehicle voltage is less than the critical vehicle voltage; and

~~c2)~~ d2) receiving the present oil temperature as the initial oil temperature for detecting the stuck fault and comparing the transmission oil temperature with the maximal

transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state when the vehicle voltage is greater than the critical vehicle voltage;

~~d)~~ e) confirming whether signals of engine revolutions per minute (RPM) and RPM of an output shaft of the automatic transmission are normal or not; step d) comprising the sub- steps of:

~~d1)~~ e1) terminating all procedures when the transmission oil temperature is greater than the maximal transmission oil temperature; and

~~d2)~~ e2) confirming whether the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal or not when the transmission oil temperature is less than the maximal transmission oil temperature;

~~e)~~ f) determining whether a clutch is under control or not; step ~~e)~~ f) comprising the sub-steps of:

~~e1)~~ f1) initiating the critical time measuring timer and repeating the step when the signals of engine RPM and RPM of an output shaft of the automatic transmission are abnormal, the critical time measuring timer is initiated; and

~~e2)~~ f2) comparing RPM of the output shaft of the automatic transmission with critical RPM of an output shaft of the automatic transmission for determining the fault of the oil temperature sensor in the stuck state when the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal;

~~f)~~ g) increasing a critical time measuring timer for detecting the fault of the oil temperature sensor at the stuck state; step ~~f)~~ g) comprising the sub-steps of:

~~f1)~~ g1) increasing the critical time measuring timer and repeating the ~~Step~~ step when both RPM of the output shaft and engine RPM do not exceed the critical RPM and the critical engine RPM; and

~~f2)~~ g2) increasing the critical time measuring timer when both RPM of the output shaft and engine RPM exceed the critical RPM and the critical engine RPM;

~~g)~~ h) comparing a value ~~of~~ obtained by subtracting initial oil temperature for detecting the stuck fault from the transmission oil temperature with a critical oil temperature rate of change for determining the fault of the oil temperature sensor in the stuck state;

~~h)~~ i) initiating the critical time measuring timer and setting the oil temperature of the transmission oil as an initial oil temperature for detecting the stuck fault; step ~~h)~~ i) comprising the sub-steps of:

~~h1)~~ i1) initiating the critical time measuring timer when the value of subtracting initial oil temperature from the transmission oil temperature is greater than the critical oil temperature rate of change;

~~h2)~~ i2) setting the oil temperature of the transmission oil to an initial oil temperature for detecting the stuck fault; and

~~h3)~~ i3) repeating the step; and

~~i)~~ j) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state; step ~~i)~~ j) comprising the sub-steps of:

~~i1)~~ j1) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state when the value of subtracting initial oil temperature from the transmission oil temperature is less than the critical oil temperature rate of change;

~~i2)~~ j2) repeating the step when the critical time measuring timer is less than the critical time; and

~~i3)~~ j3) determining that there is the fault of the oil temperature sensor in the stuck state when the critical time measuring timer is greater than the critical time.

4. (Withdrawn – Currently Amended) A method for detecting a fault of an oil temperature sensor for a hydraulic controller of an automatic transmission by detecting oil temperature of the automatic transmission based on how long the engine has been turned off by using a determining means for detecting the fault of the oil temperature sensor, the method comprising the steps of:

a) confirming whether enabling/disabling) bit modes of an oil temperature sensor fault detecting function for a state in which the engine is turned off at room temperature for an extended time, are displayed or not;

b) confirming whether the engine has been started or not; step b) comprising the sub-steps of:

b1) terminating all procedures if the disabling mode is terminated; and

b2) confirming whether the engine has been started or not if the enabling mode bit is selected;

c) comparing a vehicle voltage with a critical vehicle voltage; step c) comprising the sub-steps of:

c1) repeating the step if the engine has not been started; and

c2) comparing the vehicle voltage with the critical vehicle voltage if the engine has been started;

d) receiving the time indicating how long the engine has been stopped at room temperature; step d) comprising the sub-steps of:

d1) comparing the vehicle voltage with the critical vehicle voltage again if the vehicle voltage is less than the critical vehicle voltage; and

d2) receiving the time indicating how long the engine has been stopped at room temperature;

e) comparing the time indicating how long the engine has been stopped at room temperature with a critical engine-stopped time for determining a fault of the oil temperature sensor in the engine-stopped state;

f) confirming whether a temperature signal of engine coolant and a temperature signal of intake-air are normal or not; step f) comprising the sub-steps of:

f1) terminating all procedures if the engine-stopped time is less than the critical engine-stopped time; and

f2) confirming whether the temperature signal of engine coolant and the temperature signal of intake-air are normal or not when the engine-stopped time is greater than the critical engine-stopped time;

g) comparing the difference between the temperature of the engine coolant and the temperature of the intake-air with a temperature difference for determining the engine-stopped fault; step g) comprising the sub-steps of:

g1) terminating all procedures if the temperature signal of engine coolant and the temperature signal of intake-air are abnormal; and

g2) comparing the difference between the temperature of the engine coolant and the temperature of the intake-air with the temperature difference for determining the engine-stopped fault if the temperature signal of engine coolant and the temperature signal of intake-air are normal; and

h) comparing the difference between the oil temperature and the coolant temperature with a temperature difference for determining the engine-stopped fault; step h) comprising the sub-steps of:

h1) terminating all procedures if the difference between the temperature of the engine coolant and the temperature of the intake-air are greater than the temperature difference for determining the engine-stopped fault; ~~and~~

h2) comparing the difference between the oil temperature and the coolant temperature with temperature difference for determining the engine-stopped fault when the difference between the temperature of the engine coolant and the temperature of the intake-air is less than the temperature difference for determining the engine-stopped fault; and

h3) determining a high temperature stuck fault; step h3) comprising the sub-steps of:

h31) terminating all procedures when the difference between the oil temperature and the coolant temperature is less than the temperature difference for ~~de-~~ determining the engine-stopped fault; and

h32) determining that there is a high temperature stuck fault in the oil temperature sensor when the difference between the oil temperature and the coolant temperature are greater than the temperature difference for determining the engine-stopped fault.

5. (Currently Amended) The method as set forth in claim 1, further comprising all the steps of the method for detecting the fault of the oil temperature sensor for the hydraulic controller of the automatic transmission by using the determining means for detecting the fault of the oil temperature sensor based on instant temperature change per unit time of the automatic transmission according to the following steps:

~~a)~~ g) displaying enabling/disabling modes of a jumper fault detecting function among fault detecting functions for the oil temperature sensor;

~~b)~~ h) confirming whether the engine is started or not; step ~~b)~~ h) comprising the sub-steps of:

~~b1)~~ h1) terminating all procedures when the disabling mode of the jumper fault detecting function is selected; and

~~b2)~~ h2) confirming whether the engine has been started or not when the enabling mode ~~(bit~~ bit of the jumper fault detecting function is selected;

~~c)~~ i) comparing the vehicle voltage with the critical vehicle voltage;

step ~~c)~~ i) comprising the sub-steps of:

~~c1)~~ i1) repeating the step of confirming whether the engine has been started or not when the engine has not been started; and

~~c2)~~ i2) comparing the vehicle voltage with the critical vehicle voltage when the engine has been started;

~~d)~~ j) receiving present oil temperature as an initial oil temperature for detecting the fault of the oil temperature sensor; step ~~d)~~ j) comprising the sub-steps of:

~~d1)~~ j1) repeating the step of comparing the vehicle voltage with the critical vehicle voltage when the vehicle voltage is less than the critical vehicle voltage; and

~~d2)~~ j2) receiving the present oil temperature as the initial oil temperature for detecting the fault in order to compare oil temperature changes per unit time when the vehicle voltage is greater than the critical vehicle voltage;

~~e)~~ k) comparing a time on a jump monitoring timer with a jumper fault determining time;

~~f)~~ l) comparing a value ~~of~~ obtained by subtracting initial oil temperature for detecting a jumper fault from a maximal measured oil temperature for determining the jumper fault with a critical oil temperature rate of change for determining the jumper fault; step ~~f)~~ l) comprising the sub-steps of:

~~f1)~~ l1) reading the maximal measured oil temperature of the jumper fault for ~~de-~~ determining the fault of the oil temperature sensor when the jump monitoring timer is less than the jumper fault determining time;

~~f2)~~ l2) receiving the oil temperature of the automatic transmission;

~~f3)~~ l3) repeating the step of comparing jump monitoring timer with the jumper fault determining time; and

~~f4)~~ l4) comparing the value of subtracting the initial oil temperature from the maximal measured oil temperature with the critical oil temperature rate of change for determining the jumper fault when the jump monitoring timer is greater than the jumper fault determining time;

~~g)~~ m) increasing time on a jumper fault confirming timer; step ~~g)~~ m) comprising the sub-steps of:

~~g1)~~ m1) repeating the step of comparing the vehicle voltage with the critical vehicle voltage when the difference between the maximal measured oil temperature and the initial oil temperature is less than the critical oil temperature rate of change; and

~~g2)~~ m2) increasing the jumper fault confirming timer when the difference between the maximal measured oil temperature and the initial oil temperature is greater than the critical oil temperature rate of change;

~~h)~~ n) comparing ~~the~~ a difference between the maximal measured oil temperature for determining the jumper fault and the initial oil temperature for detecting the jumper fault with the critical oil temperature rate of change for determining the jumper fault; and

~~i)~~ o) comparing the time on the jumper fault confirming timer with a jumper fault confirming time; step ~~i)~~ o) comprising the sub-steps of:

~~i1)~~ o1) comparing the vehicle voltage with the critical vehicle voltage when the difference between the maximal measured oil temperature and the initial oil temperature is less than the critical oil temperature rate of change for determining the jumper fault;

~~i2)~~ o2) comparing the jumper fault confirming timer with the jumper fault confirming time when the difference between the maximal measured oil temperature and the initial oil temperature is greater than the critical oil temperature rate of change for determining the jumper fault; and

~~i3)~~ o3) repeating the step of increasing the jumper fault confirming timer when the jumper fault confirming timer is less than a fault confirming time for determining fault of the oil temperature sensor by detecting the temperature rate of change; and determining that there is fault of the oil temperature sensor when the jumper fault confirming timer is greater than a fault confirming time for determining fault of the oil temperature.

6. (Currently Amended) The method as set forth in claim 1, further comprising all the steps of the method for detecting the fault of the oil temperature sensor for the hydraulic controller of the automatic transmission by using the determining means for detecting the fault of the oil temperature sensor at the stuck state of ~~the~~ a detected signal of the oil temperature sensor in the driving mode where transmission oil temperature increases according to the following steps:

g) measuring the transmission oil temperature with the oil temperature sensor;

~~a)~~ h) confirming whether enabling/disabling modes of a stuck fault detecting function among fault detecting functions of the oil temperature sensor are displayed;

~~b)~~ i) comparing [[a]] the vehicle voltage with [[a]] the critical vehicle voltage; the step comprising the sub-steps of:

~~b1)~~ i1) terminating all procedures when the disabling mode of the stuck fault detecting function is selected; and

~~b2)~~ i2) comparing the vehicle voltage with the critical vehicle voltage when the enabling mode of the stuck fault detecting function is selected;

~~c)~~ j) comparing the transmission oil temperature with a maximal transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state; step ~~c)~~ j) comprising the sub-steps of:

~~c1)~~ j1) terminating all procedures when the vehicle voltage is less than the critical vehicle voltage; and

~~c2)~~ j2) receiving the present oil temperature as the initial oil temperature for detecting the stuck fault and comparing the transmission oil temperature with the maximal transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state when the vehicle voltage is greater than the critical vehicle voltage;

~~d)~~ k) confirming whether signals of engine revolutions per minute (RPM) and RPM of an output shaft of the automatic transmission are normal or not; the step ~~d)~~ k) comprising the sub-steps of:

~~d1)~~ k1) terminating all procedures when the transmission oil temperature is greater than the maximal transmission oil temperature; and

~~d2)~~ k2) confirming whether the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal or not when the transmission oil temperature is less than the maximal transmission oil temperature

~~e)~~ l) ~~determining whether a clutch is under control or not~~ comparing RPM; step ~~e)~~ l) comprising the sub-steps of:

~~e1)~~ l1) initiating the critical time measuring timer and repeating the step when the signals of engine RPM and RPM of an output shaft of the automatic transmission are abnormal, the critical time measuring timer is initiated; and

~~e2)~~ l2) comparing RPM of the output shaft of the automatic transmission with critical RPM of an output shaft of the automatic transmission for determining the fault of the oil temperature sensor in the stuck state when the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal;

~~f)~~ m) increasing a critical time measuring timer for detecting the fault of the oil temperature sensor at the stuck state; step ~~f~~ m) comprising the sub-steps of:

~~f1)~~ m1) increasing the critical time measuring timer and repeating the ~~Step~~ step when both RPM of the output shaft and engine RPM do not exceed the critical RPM and the critical engine RPM; and

~~f2)~~ m2) increasing the critical time measuring timer when both RPM of the output shaft and engine RPM exceed the critical RPM and the critical engine RPM;

~~g)~~ n) subtracting a value of initial oil temperature for detecting the stuck fault from the transmission oil temperature with a critical oil temperature rate of change for determining the fault of the oil temperature sensor in the stuck state;

~~h)~~ o) initiating the critical time measuring timer and setting the oil temperature of the transmission oil as an initial oil temperature for detecting the stuck fault; step ~~h)~~ o) comprising the sub-steps of:

~~h1)~~ o1) initiating the critical time measuring timer when the value of subtracting initial oil temperature from the transmission oil temperature is greater than the critical oil temperature rate of change;

~~h2)~~ o2) setting the oil temperature of the transmission oil to an initial oil temperature for detecting the stuck fault; and

~~h3)~~ o3) repeating the step; and

~~i)~~ p) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state; the step comprising the sub-steps of:

~~i1)~~ p1) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state when the value of subtracting initial oil temperature from the transmission oil temperature is less than the critical oil temperature rate of change;

~~i2)~~ p2) repeating the step when the critical time measuring timer is less than the critical time; and

~~i3)~~ p3) determining that there is the fault of the oil temperature sensor in the stuck state when the critical time measuring timer is greater than the critical time.

7. (Currently Amended) The method as set forth in claim 1, further comprising all the steps of the method for detecting the fault of the oil temperature sensor for the hydraulic controller of the automatic transmission by detecting the oil temperature of the automatic transmission based on how long the engine has been stopped by using the determining means for detecting the fault of the oil temperature sensor according to the following steps:

~~a)~~ g) confirming whether enabling modes of oil temperature sensor fault detecting function in the state that the engine is turned off at room temperature for an extended time, among fault detecting functions of the oil temperature sensor, are displayed or not;

~~b)~~ h) confirming whether the engine has been started or not; step ~~b1)~~ h) comprising the sub-steps of:

~~b1)~~ h1) terminating all procedures if the disabling mode, is terminated; and

~~b2)~~ h2) confirming whether the engine has been started or not if the enabling mode is selected;

~~c)~~ i) comparing a vehicle voltage with a critical vehicle voltage; step ~~cc)~~ i) comprising the sub-steps of:

~~c1)~~ i1) repeating the step if the engine has not been started; and

~~c2)~~ i2) comparing the vehicle voltage with the critical vehicle voltage if the engine has been started;

~~d)~~ j) receiving the time indicating how long the engine has been stopped at room temperature; step ~~d)~~ j) comprising the sub-steps of:

~~d1)~~ j1) comparing the vehicle voltage with the critical vehicle voltage again if the vehicle voltage is less than the critical vehicle voltage; and

~~d2)~~ j2) receiving the time indicating how long the engine has been stopped at room temperature;

~~e)~~ ~~k)~~ comparing the time indicating how long the engine has been stopped at room temperature with a critical engine-stopped time for determining a fault of the oil temperature sensor in the engine-stopped state; confirming whether a temperature signal of engine coolant and a temperature signal of intake-air are normal or not; step ~~e)~~ k) comprising the sub-steps of:

~~e1)~~ k1) terminating all procedures if the engine-stopped time is less than the critical engine-stopped time; and

~~e2)~~ k2) confirming whether the temperature signal of engine coolant and the temperature signal of intake-air are normal or not when the engine-stopped time is greater than the critical engine-stopped time;

~~f)~~ l) comparing ~~the~~ a difference between the temperature of the engine coolant and the temperature of the intake-air with a temperature difference for determining the engine-stopped fault; step ~~f)~~ l) comprising the sub-steps of:

~~f1)~~ l1) terminating all procedures if the temperature signal of engine coolant and the temperature signal of intake-air are abnormal;

~~f2)~~ l2) comparing the difference between the temperature of the engine coolant and the temperature of the intake-air with the temperature difference for ~~de-~~ determining the engine-stopped fault if the temperature signal of engine coolant and the temperature signal of intake-air are normal;

~~g)~~ m) comparing ~~the~~ a difference between the oil temperature and the coolant temperature with [[a]] the temperature difference for determining the engine-stopped fault; step ~~g)~~ m) comprising the sub-steps of:

~~g1)~~ m1) terminating all procedures if the difference between the temperature of the engine coolant and the temperature of the intake-air are greater than the temperature difference for determining the engine-stopped fault;

~~g2)~~ m2) comparing the difference between the oil temperature and the coolant temperature with the temperature difference for determining the engine-stopped fault when the difference between the temperature of the engine coolant and the temperature of the intake-air is less than the temperature difference for determining the engine-stopped fault; and

~~g3)~~ m3 determining a high temperature stuck fault; step ~~g3)~~ m3) comprising the sub-steps of:

~~g31)~~ m31) terminating all procedures when the difference between the oil temperature and the coolant temperature is less than the temperature difference for determining the engine-stopped fault; and

~~g32)~~ m32) determining that there is a high temperature stuck fault in the oil temperature sensor when the difference between the oil temperature and the coolant temperature are greater than the temperature difference for determining the engine-stopped fault.

8. (Currently Amended) The method as set forth in claim 1, further comprising all the steps of the method for detecting a fault of the oil temperature sensor for the hydraulic controller of an automatic transmission by using the determining means for detecting the fault of the oil temperature sensor at the stuck state of ~~the~~ a detected signal of the oil temperature sensor in a driving mode where transmission oil temperature increases according to the following steps:

g) measuring the transmission temperature with the oil temperature sensor;

~~a)~~ h) confirming whether an enabling bit of a stuck fault detecting function of the oil temperature sensor is displayed;

~~b)~~ i) comparing [[a]] the vehicle voltage with [[a]] the critical vehicle voltage; step ~~b)~~ i) comprising the sub-steps of:

~~b1)~~ i1) terminating all procedures when the disabling mode of the stuck fault detecting function is selected; and

~~b2)~~ i2) comparing the vehicle voltage with the critical vehicle voltage when the enabling mode of the stuck fault detecting function is selected;

~~e)~~ j) comparing the transmission oil temperature with a maximal transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state; step ~~e)~~ j) comprising the sub-steps of:

~~e1)~~ j1) terminating all procedures when the vehicle voltage is less than the critical vehicle voltage; and

~~e2)~~ j2) comparing the transmission oil temperature with the maximal transmission oil temperature for determining the fault of the oil temperature sensor in the stuck state when the vehicle voltage is greater than the critical vehicle voltage;

~~d)~~ k) confirming whether signals of engine revolutions per minute (RPM) and RPM of an output shaft of the automatic transmission are normal or not; step ~~d)~~ k) comprising the sub-steps of:

~~d1)~~ k1) terminating all procedures when the transmission oil temperature is greater than the maximal transmission oil temperature; and

~~d2)~~ k2) confirming whether the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal or not when the transmission oil temperature is less than the maximal transmission oil temperature;

~~e)~~ l) determining whether a clutch is under control or not; step ~~e)~~ l) comprising the sub-steps of:

~~e1)~~ l1) initiating the critical time measuring timer and repeating the step when the signals of engine RPM and RPM of an output shaft of the automatic transmission are abnormal, the critical time measuring timer is initiated; and

~~e2)~~ l2) comparing RPM of the output shaft of the automatic transmission with critical RPM of an output shaft of the automatic transmission for ~~de-~~ determining the fault of the oil temperature sensor in the stuck state when the signals of engine RPM and RPM of an output shaft of the automatic transmission are normal;

~~f)~~ m) increasing a critical time measuring timer for detecting the fault of the oil temperature sensor at the stuck state; step ~~f)~~ m) comprising the sub-steps of:

~~f1)~~ m1) the critical time measuring timer and repeating the ~~Step~~ step when both RPM of the output shaft and engine RPM do not exceed the critical RPM and the critical engine RPM; and

~~f2)~~ m2) increasing the critical time measuring timer when both RPM of the output shaft and engine RPM exceed the critical RPM and the critical engine RPM;

~~g)~~ n) subtracting a value of initial oil temperature for detecting the stuck fault from the transmission oil temperature with a critical oil temperature rate of change for determining the fault of the oil temperature sensor in the stuck state,

~~h)~~ o) initiating the critical time measuring timer and setting the oil temperature of the transmission oil as an initial oil temperature for detecting the stuck fault; step ~~h~~ o) comprising the sub-steps of:

~~h1)~~ o1) initiating the critical time measuring timer when the value of subtracting initial oil temperature from the transmission oil temperature is greater than the critical oil temperature rate of change;

~~h2)~~ o2) setting the oil temperature of the transmission oil to an initial oil temperature for detecting the stuck fault; and

~~h3)~~ o3) repeating the step; ~~and~~

~~i)~~ p) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state; step ~~i)~~ p) comprising the sub-steps of:

~~i1)~~ p1) comparing the critical time measuring timer with the critical time for determining the fault of the oil temperature sensor in the stuck state when the value of subtracting initial oil temperature from the transmission oil temperature is less than the critical oil temperature rate of change;

~~i2)~~ p2) repeating the step when the critical time measuring timer is less than the critical time; and

~~i3)~~ p3) determining that there is the fault of the oil temperature sensor in the stuck state when the critical time measuring timer is greater than the critical time.

9. (Currently Amended) The method as set forth in claim 5, further comprising all the steps of the method for detecting the fault of the oil temperature sensor for the hydraulic controller of the automatic transmission by detecting the oil temperature of the automatic transmission based on how long the engine has been stopped by using the determining means for detecting the fault of the oil temperature sensor according to the following steps:

~~a)~~ p) confirming whether enabling modes of oil temperature sensor fault detecting function in the state that the engine is turned off at room temperature for an extended time, are displayed or not;

~~b)~~ q) confirming whether the engine has been started or not; step b) comprising the sub-steps of:

~~b1)~~ q1) terminating all procedures if the disabling mode is terminated; and

~~b2)~~ q2) confirming whether the engine has been started or not if the enabling mode is selected;

~~c)~~ r) comparing [[a]] the vehicle voltage with [[a]] the critical vehicle voltage; step ~~c)~~ r) comprising the sub-steps of:

~~c1)~~ r1) repeating the step if the engine has not been started; and

~~c2)~~ r2) comparing the vehicle voltage with the critical vehicle voltage if the engine has been started;

~~d)~~ s) receiving ~~the~~ a time indicating how long the engine has been stopped at room temperature; step ~~d)~~ s) comprising the sub-steps of:

~~d1)~~ s1) comparing the vehicle voltage with the critical vehicle voltage again if the vehicle voltage is less than the critical vehicle voltage; and

~~d2)~~ s2) receiving the time indicating how long the engine has been stopped at room temperature;

~~e)~~ t) comparing the time indicating how long the engine has been stopped at room temperature with a critical engine-stopped time for determining a fault of the oil temperature sensor in the engine-stopped state;

~~f)~~ u) confirming whether a temperature signal of engine coolant and a temperature signal of intake-air are normal or not; step ~~f1~~ u1) comprising the sub-steps of:

~~f1)~~ u1) terminating all procedures if the engine-stopped time is less than the critical engine-stopped time; and

~~f2)~~ u2) confirming whether the temperature signal of engine coolant and the temperature signal of intake-air are normal or not when the engine-stopped time is greater than the critical engine-stopped time;

~~g)~~ v) comparing ~~the~~ a difference between the temperature of the engine coolant and the temperature of the intake-air with a temperature difference for determining the engine-stopped fault; step ~~g)~~ v) comprising the sub-steps of:

~~g1)~~ v1) terminating all procedures if the temperature signal of engine coolant and the temperature signal of intake-air are abnormal; and

~~g2)~~ v2) comparing the difference between the temperature of the engine coolant and the temperature of the intake-air with the temperature difference for determining the engine-stopped fault if the temperature signal of engine coolant and the temperature signal of intake-air are normal;

~~h)~~ w) comparing ~~the~~ a difference between the oil temperature and the coolant temperature with a temperature difference for determining the engine-stopped fault; step ~~h)~~ w) comprising the sub-steps of:

~~h1)~~ w1) terminating all procedures if the difference between the temperature of the engine coolant and the temperature of the intake-air are greater than the temperature difference for determining the engine-stopped fault;

~~h2)~~ w2) comparing the difference between the oil temperature and the coolant temperature with the temperature difference for determining the engine-stopped fault when the difference between the temperature of the engine coolant and the temperature of the intake-air is less than the temperature difference for determining the engine-stopped fault; and

~~h3)~~ w3) determining a high temperature stuck fault; step ~~h3)~~ w3) comprising the sub-steps of:

~~h31)~~ w31) terminating all procedures when the difference between the oil temperature and the coolant temperature is less than the temperature difference for ~~de-~~ determining the engine-stopped fault; and

~~h32)~~ w32) determining that there is a high temperature stuck fault in the oil temperature sensor when the difference between the oil temperature and the coolant temperature are greater than the temperature difference for determining the engine-stopped fault.

10. (Currently Amended) The method as set forth in claim 8, further comprising all the steps of the method for detecting the fault of the oil temperature sensor for the hydraulic controller of the automatic transmission by detecting the oil temperature of the automatic transmission based on how long the engine has been stopped by using the determining means for detecting the fault of the oil temperature sensor according to the following steps:

~~a)~~ q) confirming whether enabling modes of oil temperature sensor fault detecting function in the state that the engine is turned off at room temperature for an extended time, are displayed or not;

~~b)~~ r) confirming whether the engine has been started or not; step ~~b)~~ r) comprising the sub-steps of: ~~C21)~~

~~b1)~~ r1) terminating all procedures if the disabling mode is terminated; and

~~b2)~~ r2) confirming whether the engine has been started or not if the enabling mode is selected;

~~c)~~ s) comparing [[a]] the vehicle voltage with [[a]] the critical vehicle voltage; step ~~c)~~ s) comprising the sub-steps of:

~~c1)~~ s1) repeating the step if the engine has not been started; and

~~c2)~~ s2) comparing the vehicle voltage with the critical vehicle voltage if the engine has been started;

~~d)~~ t) receiving the time indicating how long the engine has been stopped at room temperature; step ~~d)~~ t) comprising the sub-steps of:

~~d1)~~ t1) comparing the vehicle voltage with the critical vehicle voltage again if the vehicle voltage is less than the critical vehicle voltage; and

~~d2)~~ t2) receiving the time indicating how long the engine has been stopped at room temperature;

~~e)~~ u) comparing the time indicating how long the engine has been stopped at room temperature with a critical engine-stopped time for determining a fault of the oil temperature sensor in the engine-stopped state;

~~f)~~ v) confirming whether a temperature signal of engine coolant and a temperature signal of intake-air are normal or not; step ~~f)~~ v) comprising the sub-steps of:

~~f1)~~ v1) terminating all procedures if the engine-stopped time is less than the critical engine-stopped time; and

~~f2)~~ v2) confirming whether the temperature signal of engine coolant and the temperature signal of intake-air are normal or not when the engine-stopped time is greater than the critical engine-stopped time;

~~g)~~ w) comparing ~~the~~ a difference between the temperature of the engine coolant and the temperature of the intake-air with a temperature difference for determining the engine-stopped fault; step ~~g)~~ w) comprising the sub-steps of:

~~g1)~~ w1) terminating all procedures if the temperature signal of engine coolant and the temperature signal of intake-air are abnormal; and

~~g2)~~ w2) comparing the difference between the temperature of the engine coolant and the temperature of the intake-air with the temperature difference for determining the engine-stopped fault if the temperature signal of engine coolant and the temperature signal of intake-air are normal;

~~h)~~ x) comparing ~~the~~ a difference between the oil temperature and the coolant temperature with a temperature difference for determining the engine-stopped fault; step ~~h)~~ x) comprising the sub-steps of:

~~h1)~~ x1) terminating all procedures if the difference between the temperature of the engine coolant and the temperature of the intake-air are greater than the temperature difference for determining the engine-stopped fault;

~~h2)~~ x2) comparing the difference between the oil temperature and the coolant temperature with the temperature difference for determining the engine-stopped fault when the difference between the temperature of the engine coolant and the temperature of the intake-air is less than the temperature difference for ~~de-~~ determining the engine-stopped fault; and

~~h3)~~ x3) determining a high temperature stuck fault; step ~~h3)~~ x3) comprising the sub-steps of:

~~h31)~~ x31) terminating all procedures when the difference between the oil temperature and the coolant temperature is less than the temperature difference for ~~de-~~ determining the engine-stopped fault; and

~~h32)~~ x32) determining that there is a high temperature stuck fault in the oil temperature sensor when the difference between the oil temperature and the coolant temperature are greater than the temperature difference for determining the engine-stopped fault.